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10/055,207	10/19/2001	Sachin G. Deshpande	8371-0144	5056

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EXAMINER	
MILLS, DONALD L	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/055,207	DESHPANDE, SACHIN G.	
	Examiner	Art Unit	
	DONALD L. MILLS	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5-13,15,17 and 19-26* is/are pending in the application.

4a) Of the above claim(s) *23-26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-13,15,17 and 19-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 5-13, 15, 17 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Der Schaar et al. (US 6,836,512 B2), hereinafter referred to as Van, in view of Mishra (US 6,075,768).

Regarding claims 1, 9, 13 and 17, Van discloses a spatial scalability for fine granular video encoding, which comprises:

Accepting, at an input of a data transmitter, video data that has been encoded into a base layer and an enhancement layer;

Transmitting the base layer in a single stream to the transmission channel in a first time period (Referring to Figure 1, system **100** receives video images from video source **2** and transmits encoded video images across variable bandwidth network **6**. Encoder **110** is composed principally of a base layer encoder **8**, a hybrid temporal-SNR FGS video encoder **20** and video rate controller **18**. Base layer encoder **8** encodes received video images into a base layer data stream. The encoded base layer represents a level of encoding that is representative of a minimally acceptable video image and is guaranteed to be transmitted over network **6**. FGS layer encoder **20** encodes residual images generated between the input video images and base

layer encoded images of the input video images into a video enhancement layer. The video enhancement layer is used to improve the quality of an image produced by the encoded base layer. Rate controller **18** determines the rate of transmission of the base layer and enhancement layer, and consequently the number of bits that can be transmitted, depending upon the available bandwidth and user preferences. User preferences can be input to controller **18** by user input **3**. See column 2, line 66 to column 3, line 17.)

Van does not disclose *selecting a second time period for transmitting the enhancement layer, where the first time period is different from the second time period and where the second time period is selected based at least in part on a determination that there is available bandwidth for transmission of the enhancement layer in the second time period; transmitting the enhancement layer in the second timer period if there is available bandwidth; and then ceasing the transmitting the enhancement layer responsive to accepting, at an input of the data transmitter, data that has been encoded into a second base layer and a second enhancement layer.*

Mishra teaches a fair bandwidth sharing for video traffic sources using distributed feedback control, which comprises adjusting the video image quality in a data packet network based upon the detected network load. The video encoding circuit adjusts the video quality by increasing the video quality when the network load is in the uncongested state (a second time period, which comprises a period of time to determine the presence of network congestion) and decreasing the video quality when the network load is in the congested state (first time period)(Referring to Figure 1, see column 2, line 62 to column 3, line 15.) In this particular case,

the combination as a whole teaches the original enhancement layer is no longer transmitted when a determination has been made to encode data at a new base and enhancement layer.

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the fair bandwidth sharing of Mishra in the video encoding and transmission system of Van. One of ordinary skill in the art at the time of the invention would have been motivated to do so in order to allow for efficient usage of network bandwidth and smooth degradation in image quality under overloaded conditions, as taught by Mishra (See column 1, lines 51-54.)

Regarding claims 5-7 and 15 as explained in the rejection statement of claims 1 and 13, Van and Mishra teach all of the claim limitations of claims 1 and 13 (parent claims).

Van does not discloses *selecting a pre-set average target data rate for transmitting video data into the transmission channel; recording bandwidth used by the transmission of the base layer; transmitting the enhancement layer in the second time period only if an average bandwidth already used by the data transmitter over a last measuring period is below the pre-set average target data rate, wherein the last measuring period is a predetermined period of time (claims 5 and 15); wherein the last measuring period is a period in which a predetermined number of pieces of data have been transmitted over the transmission channel by the data transmitter (claim 6); and wherein the data transmitter has a pre-set maximum transmission rate, and wherein the data transmitter ensures that its rate of transmitting data is below the pre-set maximum transmission rate (claim 7).*

Mishra teaches a fair bandwidth sharing for video traffic sources using distributed feedback control, which comprises adjusting the video image quality in a data packet network

based upon the detected network load. The video encoding circuit adjusts the video quality by increasing the video quality when the network load is in the uncongested state and decreasing the video quality when the network load is in the congested state (Referring to Figure 1, see column 2, line 62 to column 3, line 15.) Mishra does not explicitly teach "an average bandwidth." However, it is well-known in the art to use an average bandwidth measurement. For example, Parkkinen et al. (US 2003/0206558) teaches utilizing target bit rates, which can be target average bit rates or target maximum bit-rates to determine the core and enhancement data streams for a scalable encoder (See paragraph 0051).

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the fair bandwidth sharing of Mishra in the video encoding and transmission system of Van. One of ordinary skill in the art at the time of the invention would have been motivated to do so in order to allow for efficient usage of network bandwidth and smooth degradation in image quality under overloaded conditions, as taught by Mishra (See column 1, lines 51-54.)

Regarding claims 8 and 20-22 as explained in the rejection statement of claims 1 and 17, Van and Mishra teach all of the claim limitations of claims 1 and 17 (parent claims).

Van does not disclose *determining if there is enough bandwidth available to the data transmitter to transmit data in addition to the base and enhancement layers already transmitted by the data transmitter; and transmitting the second enhancement layer only if an average bandwidth already used by the data transmitter over a last measuring period is below the pre-set average target data rate.*

Mishra teaches a fair bandwidth sharing for video traffic sources using distributed feedback control, which comprises adjusting the video image quality in a data packet network based upon the detected network load. The video encoding circuit adjusts the video quality by increasing the video quality when the network load is in the uncongested state and decreasing the video quality when the network load is in the congested state (Referring to Figure 1, see column 2, line 62 to column 3, line 15.) Mishra does not explicitly teach "an average bandwidth." However, it is well-known in the art to use an average bandwidth measurement. For example, Parkkinen et al. (US 2003/0206558) teaches utilizing target bit rates, which can be target average bit rates to determine the core and enhancement data streams for a scalable encoder (See paragraph 0051).

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the fair bandwidth sharing of Mishra in the video encoding and transmission system of Van. One of ordinary skill in the art at the time of the invention would have been motivated to do so in order to allow for efficient usage of network bandwidth and smooth degradation in image quality under overloaded conditions, as taught by Mishra (See column 1, lines 51-54.)

Referring to claim 10, the primary reference further teaches *wherein transmitting the base layer on the transmission channel comprises transmitting data from a media server to an image projector* (Referring to Figure 1, system **100** receives video images from video source **2** and transmits encoded video images across variable bandwidth network **6**. See column 2, line 66 to column 3, line 17.)

Referring to claim 11, the primary reference further teaches *wherein transmitting the base layer on the transmission channel comprises transmitting data from a media server to a decoding device* (Referring to Figure 1, system **100** receives video images from video source **2** and transmits encoded video images across variable bandwidth network **6**. See column 2, line 66 to column 3, line 17.)

Regarding claim 12 as explained in the rejection statement of claim 1, Van and Mishra teach all of the claim limitations of claim 1.

Van does not disclose *determining if there is enough bandwidth available to the data transmitter to transmit the enhancement layer in addition to the base layer already transmitted comprises calculating at least two average bandwidths used by the data transmitter, each of the average bandwidths calculated over different measuring periods.*

Mishra teaches a fair bandwidth sharing for video traffic sources using distributed feedback control, which comprises adjusting the video image quality in a data packet network based upon the detected network load. The video encoding circuit adjusts the video quality by increasing the video quality when the network load is in the uncongested state and decreasing the video quality when the network load is in the congested state (Referring to Figure 1, see column 2, line 62 to column 3, line 15.) Mishra does not explicitly teach "an average bandwidth." However, it is well-known in the art to use an average bandwidth measurement. For example, Parkkinen et al. (US 2003/0206558) teaches utilizing target bit rates, which can be target average bit rates to determine the core and enhancement data streams for a scalable encoder (See paragraph 0051).

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the fair bandwidth sharing of Mishra in the video encoding and transmission system of Van. One of ordinary skill in the art at the time of the invention would have been motivated to do so in order to allow for efficient usage of network bandwidth and smooth degradation in image quality under overloaded conditions, as taught by Mishra (See column 1, lines 51-54.)

Regarding claim 19 as explained in the rejection statement of claim 17, Van and Mishra teach all of the claim limitations of claim 17 (parent claim).

Van does not disclose *wherein the scheduling operation is configured to determine that there is enough bandwidth available to the transmission scheduler when an average bandwidth rate used by the transmission scheduler is less than the target bandwidth rate; wherein the average bandwidth rate used by the transmission scheduler is determined by recording a number of bytes, and a time period during which those bytes were transmitted, for at least the base layer data transmission.*

Mishra teaches a fair bandwidth sharing for video traffic sources using distributed feedback control, which comprises adjusting the video image quality in a data packet network based upon the detected network load. The video encoding circuit adjusts the video quality by increasing the video quality when the network load is in the uncongested state and decreasing the video quality when the network load is in the congested state (Referring to Figure 1, see column 2, line 62 to column 3, line 15.) Mishra does not explicitly teach "an average bandwidth." However, it is well-known in the art to use an average bandwidth measurement. For example, Parkkinen et al. (US 2003/0206558) teaches utilizing target bit rates, which can be target average

bit rates to determine the core and enhancement data streams for a scalable encoder (See paragraph 0051).

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the fair bandwidth sharing of Mishra in the video encoding and transmission system of Van. One of ordinary skill in the art at the time of the invention would have been motivated to do so in order to allow for efficient usage of network bandwidth and smooth degradation in image quality under overloaded conditions, as taught by Mishra (See column 1, lines 51-54.)

Response to Arguments

3. Applicant's arguments filed 20 November 2008 have been fully considered but they are not persuasive.

Rejection Under 35 U.S.C. § 103

On page 8 of the remarks, regarding claims 1, 13, and 17, the Applicant argues neither Van, Mishra, nor Parkkinen disclose, teach, or otherwise make obvious *sending a base layer and an enhancement layer in different time periods based on bandwidth availability in the different time periods*. The Examiner respectfully disagrees. Mishra teaches a fair bandwidth sharing for video traffic sources using distributed feedback control, which comprises adjusting the video image quality in a data packet network based upon the detected network load. The video encoding circuit adjusts the video quality by increasing the video quality when the network load is in the uncongested state (a second time period, which comprises a period of time to determine the presence of network congestion) and decreasing the video quality when the network load is

in the congested state (first time period) (Referring to Figure 1, see column 2, line 62 to column 3, line 15.) Both the uncongested and congested state comprise distinct and different periods of time and meet the claimed second and first periods of time, respectively. In this particular case, the original enhancement layer is no longer transmitted when a determination has been made to encode data at a new base and enhancement layer. Therefore, Mishra and Parkkinen teach *sending a base layer and an enhancement layer in different time periods based on bandwidth availability in the different time periods.*

On page 10 of the remarks, in response to applicant's arguments against the references individually, specifically Mishra, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

On page 11 of the remarks, regarding claim 17, the Applicant argues neither Van, Mishr, nor Parkkinen disclose, teach, or otherwise make obvious *an encoder for encoding all of the data received in the data stream independent of a rate control process.* The Examiner respectfully disagrees. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Moreover, Van discloses Encoder **110** is composed principally of a base layer encoder **8**, a hybrid temporal-SNR FGS video encoder **20** and video rate controller **18**. Base layer encoder **8** encodes received video images into a base layer data stream. The encoded base layer represents a level of encoding that is representative of a minimally acceptable video image and is guaranteed to be

transmitted over network **6**. FGS layer encoder **20** encodes residual images generated between the input video images and base layer encoded images of the input video images into a video enhancement layer. The video enhancement layer is used to improve the quality of an image produced by the encoded base layer. Rate controller **18** determines the rate of transmission of the base layer and enhancement layer, and consequently the number of bits that can be transmitted, depending upon the available bandwidth and user preferences. Here, the encoding is performed independent of the rate control process (See column 2, line 66 to column 3, line 17.) Therefore, Van discloses *an encoder for encoding all of the data received in the data stream independent of a rate control process.*

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DONALD L. MILLS whose telephone number is (571)272-3094. The examiner can normally be reached on 9:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Donald L Mills/
Examiner, Art Unit 2416
11 February 2009